> TASK 1 - PROJECT INITIATION

Upon contract execution, our team will organize a "Project Scope Definition meeting" that will:

- Review status of NEPA activities related to the project such as- leading site(s), Environmental Review, current project issues and address the "hand-off" off of information and materials with the NEPA contractor to assure seamless transfer of information, effort and responsibility. City will need to select a single site and provide completed NEPA documentation.

We will then prepare a detailed scope of work including timeline, key activities, milestones and estimated budget consistent with this RFP that works within our quoted fee budget.

- Roles and responsibilities of the City and contractor will be noted in the scope of work.
- City will provide Scope acceptance and "notice to proceed"
- We will organize a project "kick-off" meeting, which will be the first regularly scheduled progress meeting, and conduct same.

TASK 1 – DELIVERABLES

- Following the "Project Scope Definition meeting", a meeting summary report indicating updated timeline with milestones for transfer of information, if any, details of timing for the development of the detailed scope of work based on the signed contract and proposed date for project Kick-off meeting will be issued.
- A detailed work plan for review and acceptance by the City and approval by the FRA will be issued within our team's quoted fee budget ("no-cost" approach).
- Conduct a "Kickoff" meeting with City staff to discuss project's scope of work, overall team goals and proposed tasks and timelines. Coordination will include discussion of site access requirements and other appropriate matters.
- Provide a written summary of kickoff meeting including copies of meeting agenda, notes, and materials introduced.

RESOURCES

- Neumann/Smith will create meeting agendas
- Mitchell Mouat, SmithGroupJJR, & Quandel will provide technical content

> TASK 2 - PUBLIC PARTICIPATION

We will coordinate three scheduled opportunities for public engagement during our work.

- The first meeting, scheduled for fall 2016 (following project initiation), will introduce our Team, advise the community of our scope of work and hear interests expressed by the public.
- Second meeting, scheduled for mid-winter 2017, will review progress, present concepts and alternatives and accept public comment.
- Third meeting, scheduled for spring 2017, will share draft final concepts/plans and gather additional public comment on the emerging concepts.
- In addition to public meetings, communication mechanisms include assisting with maintenance of the Project website and developing e-newsletters. Project-related communications materials are to be produced and distributed at appropriate milestones.

City Council, Planning Commission and other policy bodies such as the Parks Advisory Commission input will be solicited at their meetings at appropriate milestones in the Project. These meetings allow for city stakeholder input into the planning and design phases and may also serve as an opportunity for the general public to engage in the Project.

We will develop a detailed timeline with associated communication and public input opportunities. All materials will be provided in a manner consistent with FRA worksheets for work plan development. Coordination efforts with MDOT, Amtrak, and the FRA, as required, will be included on the preliminary timeline.

SUBTASK 2.1 PUBLIC INVOLVEMENT PLAN

We will develop a Public Involvement Plan ("PIP") consistent with City of Ann Arbor policies, and define the goals and objectives of the public involvement effort, identify key stakeholders including representatives from the existing Citizen Work Group and Advisory Committee, and discuss the public involvement techniques and public participation materials that will be used, such as e-newsletters, fact-sheets, graphical displays, etc.

Based upon the schedule of Project milestones, a public involvement matrix will be developed to address methods proposed for the conveyance of information. The matrix will help guide and focus the various stages of the outreach effort.

A suggested list of the meeting types includes:

- Agency
- Stakeholder
- Public workshops
- Policy bodies including City Council, City Planning Commission, Parks Advisory Commission, etc.

SUBTASK 2.2 STAKEHOLDERS

We will build upon and further the ongoing outreach program and will work with information gathered from the AECOM team and City staff to establish an updated stakeholder database, which will include City Staff, the Ann Arbor Area Transportation Authority ("AAATA"), appropriate community groups, organizations, and individuals that have expressed an interest in staying informed.

SUBTASK 2.3 PUBLIC MEETING STRUCTURE AND SCHEDULE

We will be responsible for conducting all meetings with the general public. This scope assumes three opportunities to engage the public. They include project initiation, input for design development, and upon completion of the preliminary engineering task to present results and identify next steps. We will provide technical background, visual aids and on-site assistance as needed. Meetings with the general public and other identified groups will be designed and scheduled to facilitate information exchange and listening opportunities at key intervals throughout the process.

It is understood that the cost of all public engagement meetings throughout the Project are part of the Project budget and the City, MDOT and/or FRA will approve all public meeting materials prior to public release.

For the three public meeting cycles, two separate meetings will be held at different times during the day with identical format and materials to maximize opportunity for members of the public to participate.

SUBTASK 2.4 PROJECT WEBSITE

The Project website hosted on the City's web page will be utilized by the public as a means of providing and obtaining information about the Project. Many members of the public are familiar with the website structure, so consistency should be maintained to encourage its use as a valuable communication tool. Additional documents, links and topics will be provided to the City for uploading on the web page. The web page will be a continued source of up-to-date postings about current Project information, meetings and events, opportunities for involvement and avenues for comment. Interactive capabilities will be maintained by the City to enable the public to ask questions, help identify issues, express concerns, review and comment on documents.

TASK 2 – DELIVERABLES

- Updated Stakeholder database.
- Support materials for all Project-related meetings.
- Provide information for placement on the Ann Arbor Station webpage on the City's website.
- Three Project e-newsletters (web-based and 100 hard copies).
- A minimum of three Project-related public meetings and presentations to policy bodies as outlined above.

RESOURCES

- SmithGroupJJR will lead the Public Participation Process and administer all meetings.
- Neumann/Smith, Mitchell Mouat, and Quandel will participate in meeting execution.

> TASK 3: PRELIMINARY ENGINEERING (PE) (30% DESIGN)

We will complete PE for the City, MDOT and FRA review and approval in support of a future Final Design and Construction Project. PE will consist of the preparation of all design development and construction project delivery documentation necessary to demonstrate the effectiveness, feasibility, and readiness of the anticipated construction project. The final deliverable(s) of this task shall be in accordance with the City's Site Plan submittal requirements which would correspond with completion of the Design Development phase of this project based on architectural design requirements.

SUBTASK 3.1 PRELIMINARY SITE AND CIVIL INFRASTRUCTURE INVESTIGATIONS

3.1.1 Survey

The survey includes the lands associated with one preferred site. This includes an ALTA/NSPS Land Title Survey as well as Topographic Mapping.

3.1.1.2 General Information

Coordinate System:

- Horizontal Coordinates will reference the Michigan State Plane Coordinate System, South Zone
- A list of site control points used to complete the survey shall be shown on the map of survey.

Vertical Datum:

- Vertical Datum will reference the North American Vertical Datum 1988 (NAVD 88).
- A list of all benchmarks established during the survey and used to establish the vertical datum will be shown on the map of survey. This list will include a description of each benchmark, its general location and elevation.

Project Understandings:

- The survey will be performed under the supervision of a Professional Surveyor licensed in the State of Michigan.

- The ALTA/NSPS Land Title Survey does constitute a boundary survey which includes the setting of any missing property corners.
- A current title policy or commitment shall be provided by the client. The cost of obtaining a title commitment is not included in the proposed fee. In the event that the client does not have access to a title commitment, SmithGroupJJR can assist in obtaining one as an additional service.
- The project scope includes work within the railroad Right-of-Way. The cost of a flagman is not included in the provided fee.

3.1.1.3 Topographic Mapping

The Topographic Survey portion of the project will include the criteria specified below. The project mapping limits include the required 50 foot overlap as specified in the City of Ann Arbor Land Development Regulations.

- Display contours at 1 foot intervals.
- Spot elevations should be shown at approximately 50 foot intervals and at breaks in grade, high points and low points, and any other areas of significance.
- Road centerline, curb, and sidewalk elevations and locations shown at approximately 50 foot intervals, and at horizontal or vertical angle points and intersections. On roadways, map the full width of the Right-of-Way.
- Building corner locations and elevations at natural ground and location of exterior columns & overhangs. Include the number of stories and construction material.
- Building first floor elevations at each door location within the topographic mapping limits.
- Remaining hardscape features including: pads, steps, truck docks, ramps, retaining walls gates, utility vaults, hand rails, etc. Label each and designate material.
- ADA detectable warning pads shown to scale.
- Roadway and parking striping. Includes parking spaces, hatching, arrows and road striping. Distinguish line type on road striping (i.e. dashed white, solid double yellow, etc.)
- Define the limits of various road and walk surfaces (i.e. brick, asphalt, concrete)
- Elevations of top of the existing rails
- Utility Locations (including sanitary, storm, power, gas, water mains, fire protection, telecommunications, steam, etc.)
  - Observed surface locations on all utilities
  - Accessible underground information for storm and sanitary sewers including: invert, sump and rim elevations, size of structure & pipes and construction material of same (cannot enter the structure). Data expressed in the form of a schedule or clearly labeled on drawing.
  - Locate and inventory the next connecting storm, sanitary and water utility outside of the full topographic mapping window.
  - Observed overhead wires and cables affecting the surveyed premises. Include directions, guy wires and pole or building locations.
  - Water utilities shall include all fire department connections both on and adjacent to buildings.
  - Show all building utility service leads using a combination of record maps and observed physical evidence as well as all existing utility meters.
- Record utility information.
  - Research and compile utility records.
  - Integrate field located utilities with record information.
  - Label quality of utility location shown on the survey. (ex. Comcast shown per record maps only. No field markings or physical evidence)
  - Note utility companies that did not provide record utility maps
- Light poles (street & site), light bollards, ground level light mountings, emergency phones, street signs, traffic lights, guardrail, and other safety devices.
- Location and elevations of top of monitoring wells and adjacent natural grade.
- Locate and identify all trees within the properties included in the ALTA/NSPS Land Title Survey scope. Include the size (D.B.H.) for trees 6" and larger, species in common English names and number of trunks for trees.
- Location of any wetland flagging if applicable
- Limits of landscape areas, bike loops and parking meters.
- Determine if a floodplain elevation has been established for the site and if applicable, show approximate floodplain contour line from available information.

3.1.1.4 ALTA/NSPS Land Title Survey (Boundary Survey)

An ALTA/NSPS Land Title Survey shall be performed by a licensed professional Land Surveyor according to 2016 standards and will be incorporated as part of an overall existing conditions plan. The scope includes Table A Options: 1, 2, 3, 4, 5, 7a, 8, 9, 11 and 13 (table attached).

- Resolve the location of Rights-of-Way included in the topographic mapping limits.
- State basis of bearings relative to an acceptable source (i.e. State Plane Coordinates).
- Show and describe all found boundary monumentation, walls and fences within the full topographic mapping limits.

- Set any missing property corners and properly notate on the survey.
- Show names, widths, public or private use of all adjacent road, alley, or railroad Rights-of-Way. Indicate undeveloped Rights-of-Way and whether vacated or abandoned if applicable.
- Show, dimension, and describe potential encroachments across both property and Right-of-Way lines. Use details if necessary.
- Show recorded or otherwise known easements by dimension, widths, uses, document source, and party to whom easement is granted, if available or observed. Note if record easement information was not provided with the Title Policy/Commitment or if the supporting documents are incomplete
- Show lot numbers, blocks, names, and liber and pages of adjacent subdivision or condominium plats.
- Show owner name, tax identification numbers, address and approximate side lot line locations for all parcels within the full Topographic Survey scope.

3.1.2 Geotechnical Study

Somat will review project conceptual drawings and finalize soil boring locations for the proposed station, bridge expansion, sidewalk, vertical pedestrian circulation, new platform, platform expansion, parking lot new pavement, signals and storm water detention basin based on the selected alternative. Upon completion of subsurface investigation, Somat will perform laboratory testing on select soil samples. A geotechnical investigation report will be prepared with a description of the prevailing subsurface characteristics of the site and recommendations for foundations types, subgrade moduli, site excavations, groundwater conditions and engineered fill recommendations in support of 30% design.

To complete a phase I ESA for the preferred alternative, Somat will review available information and perform a Phase I ESA in accordance with the ASTM Standard. A written report will be prepared which will include site use history, environmental database results, general Site information and observations, potential recognized environmental conditions and recommendations for further assessment, if needed.

3.1.3 Natural Features

The team will review published data and complete a field investigation of the project site to determine the presence of natural features including woodlands, wetlands, landmark trees, watercourses, steep slopes, floodplains and/or endangered species habitat. Should any of these natural features be present, the team will identify their location and document their condition in a manner suitable for further analysis and permitting, if required.

3.1.4 Determine Development Footprint

The team will determine the development footprint of the project site based on setback requirements. This development footprint may also be influenced by other elements such as existing utilities and natural features.

SUBTASK 3.2 PRELIMINARY SITE DESIGN AND UTILITY INVESTIGATIONS FOR DEVELOPMENT OF PROJECT

- It is understood this project is anticipating obtaining a Leadership in Energy and Environmental Design (LEED) certification. The team will consider this in all of the site elements that relate to LEED certification. The team will complete preliminary site design for the following items as noted in the RFP:
- Site layout and grading plan including site access, internal site circulation (cars, transit, bicycle and pedestrian), parking and loading and service areas including waste receptacles;
- Utility locations and proposed relocation needs shall include potable water, sanitary sewer, stormwater, electrical, natural gas and communications;
- Drainage and storm water mitigation design per Washtenaw County standards with an emphasis on Low Impact Design techniques;
- Soil erosion and sedimentation control plans per Washtenaw County standards;
- Natural features impacts and alternative analysis including a natural features protection and/or mitigation plan if applicable;
- Landscape and streetscape plans for the site with an emphasis on native species/native habitat as appropriate;
- Photometric plan including illumination levels, fixture locations and details of fixtures.

Final deliverables shall be in accordance with the City's Site Plan submittal requirements. We anticipate the following sheets as part of the final deliverable package:

- Cover Sheet and Phasing Plan
- Site Survey of Existing Conditions
- Site Preparation and Soil Erosion and Sedimentation Control Plans
- Site Demolition Plans
- Traffic Maintenance and Control Plans
- Layout Plans
- Materials and Landscape Plans
- Grading and Drainage Plans
- Utility Plans
- Lighting Layout
- Site Details
- Outline Technical Specifications

3.1.5 UTILITY COORDINATION

Determining the utilities impacted by the project requires a thorough identification and analysis of infrastructure in the project vicinity, as well as coordination and communication with the utility owners. The project team will identify all remaining utilities, both above ground and underground via the MISSDIG design ticket process, and by accessing data previously collected by the conceptual design engineer. Review of the Ann Arbor Station Tier II Alternatives Analysis report shows locations of the municipal underground utility network, as well as existing and proposed privately owned underground gas lines at the Fuller Rd station alternative site. Other privately owned utilities, such as power and communications are also anticipated to lie within the project area.

Existing records will be obtained from utility companies and reviewed against the project survey to verify that all known utilities are shown on the plans. Following confirmation of utility locations, a preliminary utility conflict analysis matrix indicating all potential conflicts with utilities, both underground and above ground, will be developed and maintained. We will investigate potential conflicts with utilities and determining whether the most economical solution to each is to relocate or protect the utility, or to modify the project design. Where conflicts cannot be resolved through design mitigation, the utilities will be clearly advised of the conflicts they will need to mitigate through adjustment or relocation of their facilities. The responsible party will be determined based on contracts, easements and agreements. Follow up meetings will be scheduled with utilities as necessary. All meetings, contacts, utility information, conflicts and resolution will be documented and provided to the City. Cost estimates and a schedule for utility relocations will be prepared and included in the overall project documents.

Underground fiber optic utilities within the railroad right-of-way need to be carefully examined due to the potential for significant relocation costs. Through its previous track design and construction work in the MDOT railroad corridor, Quandel has developed a process for mitigating costly fiber relocations, yet ensuring the track infrastructure won't impede future maintenance needs of the utility companies (Level 3 and CenturyLink). The process allows Quandel to better estimate the cost of relocates, and has allowed their projects to avoid unnecessary relocate costs, which can inflate to hundreds of dollars per foot in certain environments. Quandel also has worked closely with MDOT during the installation of their railroad signal fiber optic line, which is located on the northern right-of-way boundary. Installation of a platform north of the proposed station track will likely impact this newly installed utility.

SUBTASK 3.3 ARCHITECTURAL SERVICES

- We will determine and prepare necessary architectural/building detail necessary for completion of 30% PE phase aimed at obtain LEED certification relying on sustainable design techniques. We will complete Design Development services in order to provide necessary drawings for Site Plan Approval submittals.
- The preliminary architectural plans we will prepare for the station and associated elements are as follows:
  - Program development, consistent with geotechnical work and foundation requirements

- Structural systems alternatives
- Elevations
- Floor plans
- Roof plans
- Building sections
- Typical wall sections
- Design Details
- Concept Lighting plan
- 3D Sketchup Model and Rendered Views of same
- Vertical access plans
- Restroom locations
- Fire protection systems
- Site identification Signage Location/Concepts
- Potential for full service bicycle center

SUBTASK 3.4 ELECTRICAL, SIGNAL AND COMMUNICATION SYSTEMS

- Define all systems
- Equipment locations
- Fiber optics
- Telephone
- Passenger information (PIDS)
- Emergency communication, i.e. telephone
- Security cameras
- Fire detection
- Cable systems
- Lighting, internal and external
- Alternative emergency power

SUBTASK 3.5 PRELIMINARY MECHANICAL AND ELECTRICAL PLUMBING PLANS

- Set of preliminary mechanical, electrical and plumbing plans that include:
  - Use of sustainable methods and techniques
  - Elevator, escalator, stair, ramp systems
  - MEP Equipment
  - Layout
  - Details
  - Fire protection
  - Emergency egress circulation
  - Definition of emergency power and system redundancy

SUBTASK 3.6 ADDITIONAL ELEMENTS ENGINEER'S SERVICES

3.6.1 Community Analysis

While it is anticipated that the Environmental Assessment will address impacts of the new station and ancillary facilities on surrounding development, air and water quality, natural features and historic site and structures, the team will review the NEPA work and summarize the issues and solutions for presentation in public meetings. In addition, the team will respond to public comments and questions to support the outcome defined in the EA. To the extent practical, the team can further address the costs and benefits of the previously considered alternative solutions in a comparative framework.

3.6.2 Transportation Study

The team will prepare a transportation study addressing traffic impacts, site access and infrastructure improvements, connectivity to existing and planned AAATA and UM transit systems, and intercity bus operations. The Study will draw on previous work prepared in the EA, as well as the selected site characteristics and location to define private automobile access including parking and kiss and ride, public transit mode access and staging, taxi and shuttle access, as well as linkage to bicycle and pedestrian pathways. City of Ann Arbor plans for pedways and the proposed pedestrian tunnel defined in the Allen Creek Berm Opening Feasibility Study.

The transportation study is a critical component in creating a successful Ann Arbor Station. Evaluating and determining improvements to the offsite and onsite transportation systems will guide and control the first and lasting impressions users and the public have regarding the station. Was the station difficult to access? Did it feel like a burden for the user? Was internal circulation confusing? Was dropping-off or picking-up a friend or family member easy to do? Does the user depart the Station saying 'What a pain?' or 'That was a breeze!'

The goal is to ensure users arrive and depart the Ann Arbor Station in an efficient and effective manner, without giving a second thought to the transportation system they just traveled, rather the focus is on the station and AMTRAK experience. Our success is judged by our work being unnoticed and routine.

The transportation study will review offsite and onsite traffic, generating findings and recommending improvements. The breadth of review will include how users (transit, autos, taxis, non-motorized, etc) get to the station and how they interface and circulate within the station.

The scope of work for the transportation study is heavily dependent upon the selected preferred site. Option 2A, B, and C versus Option 3A require a different set of intersection and driveway data collection and analysis efforts. Option 3A will require less intersections to be studied due to the site location on a major roadway (Fuller Road) and the data collection effort would be somewhat reduced. Giving the location of Option 2, additional intersections would be studied to fully understand the impact on Depot Street and the connections radiating from the station east, west, and south. For this study, it was assumed eight intersections would be counted and reviewed.

The offsite operations will be evaluated through the Traffic Impact Analysis. Existing traffic data (vehicles, commercial, transit, and non-motorized) will be gathered for key intersections surrounding the station. It is anticipated that morning (7-9 a.m.) and evening peak hour (4-6 p.m.) data, along with mid-day non-peak hours (11 a.m. – 1 p.m.) will be gathered for the study. This data will be used in creating baseline traffic models, where we add new trips to/from the station. The existing road network will be assessed and if degradations in the system are found (e.g. levels of service, queuing, traffic conflicts, gaps, etc), then countermeasures would be tested and effective improvements would be recommended. Transit routes and non-motorized routes accessing the station will also be reviewed to confirm the transportation system will accommodate all users. Possible outcomes for the offsite study may include, but are not limited to:

- Signing and wayfinding modifications,
- Increasing travel lanes widths and/or turn radii to accommodate larger vehicles,
- Addition of sidewalks/pathways and adjustments of facilities to provide ADA compliance,
- Bike routing, marking, and signage improvements,
- Signal timing adjustments,
- Signal installation at the main station driveway,
- Coordination of signals, and
- Increase in road capacity (e.g. turn lane addition, decel/acceleration lane).

The onsite evaluation will continue to focus on all users (autos, transit, taxi/shuttles, pedestrians, and bicycles). The circulation and routing for the users will be reviewed using geometric and operational modelling assessments. The geometry of the driveways, connecting routes, and parking facilities will be reviewed for each user type to ensure access is provided and circulation can be achieved. The congruence of users typically creates delays including the method of how parking lots are metered, therefore modelling of the circulation will ensure use demands are served, capacity is provided, and the site has a harmonized flow. Possible outcomes for the onsite study may include, but are not limited to:

- Addition of facilities (bike lanes, sidewalks, pathways, drive isles, transit stops, bike accommodations)
- Routing and circulation adjustments,
- Geometry improvements such as lane widths, turn radii, drop-off/pick-up zones, horizontal and vertical alignment adjustments,
- Traffic control at user interfaces,
- Marking, signing and wayfinding modifications, and
- Parking lot metering controls.

The team will provide a draft report and final report detailing findings and recommendations for consideration by the City of Ann Arbor and stakeholders. We have assumed attending four client meetings and two public meetings for this project.

3.6.3 Rail Infrastructure Elements

3.6.3.1 Track and Civil Design

The team will participate with the City, MDOT and Amtrak to inspect the project area at the earliest opportunity in order to assess the current base conditions of the infrastructure. Quandel will coordinate right of access and safety training with Amtrak and MDOT for the project team. Particular attention will be paid to utilities, railroad and roadway bridges, culverts, private grade crossings, sidings, signal masts and bungalows, and special trackwork. The inspection will serve to clarify the planned construction work and identify any visible deficiencies or obstacles. An inspection report will be prepared.

On completion of the inspection, Quandel with work with the signal sub, LTK Engineering, to develop alternative track and signal configurations to support the design of a new station with side platforms, overhead pedestrian access and two main line tracks through the station. This analysis will be coordinated with the City to take into account the planned Allen Creek Berm Opening project to optimize the cost and the construction phasing of constructing large culverts under the active Michigan Line track. Our preliminary plan envisions the reconstruction of the north side main between the existing intermediate signal locations at MP 35.60 (Geddes Rd) and MP 37.75 (east of the Lake Shore Dr private crossing) with electrically operated turnouts to enable remote control for train meets. The analysis will include an evaluation of platform elevations and clearances to provide level boarding with the new PRIIA equipment and compatibility with any legacy equipment (commuter and intercity) operating in the corridor. The team will also evaluate the need for movable platform edges, as we employed at the new Dearborn station, to enable the infrequent movement of high wide loads transported by Norfolk Southern.

Quandel will prepare a track design defining the rail alignment, resulting in requirements for the civil, structural and signal elements. The initial activities include a review of available data including the inspection report; mapping, survey and geotechnical products developed above; railroad track charts, timetable, valuation maps and signal plans; utility plans; roadway and bridge plans and track design standards. Design criteria will be defined to guide the development of the horizontal and vertical geometry. Amtrak and MDOT standard drawings and dimensions will be evaluated and selected to define track cross sections, track and grade crossing materials, turnouts, retaining wall structures, ditches and drainage elements.

C. PROPOSED WORKPLAN

Conceptual design plans for track and civil elements that may have been completed under the previous contract will be reviewed and revised using Bentley Microstation V8 and Rail Track employing MDOT CADD standards and configuration/seed files. The plans will define embankment, utilities, drainage, erosion control (see design discussion below), access roads/ walkways and include: cover sheet, index, schedule of quantities, typical sections, ties and benchmarks, track plans and profiles, critical cross sections, standard details, and special provisions. The design will be coordinated with and employ recommendations from the geotechnical analysis in the design of the subgrade. A package including the plans, preliminary cost estimates and construction schedule and specification outline will be submitted for review.

After receipt and resolution of comments, the plan set package submitted for review and signature by the railroads. Upon approval by all parties, the plans will be forwarded to the FRA.

3.6.3.2 Drainage, Erosion and Sediment Control

In general, for the existing track structure, runoff is conveyed through track side ditches or storm drains on either side of the improvement area to points of ultimate outlets at creeks and waterways. Occasional culverts are located to convey flow under tracks and to points of ultimate discharge. The proposed drainage design will consist of improving ditch grades to a minimum of 0.3% along improved areas, adding new culverts and extending existing culverts where necessary, possible construction of storm sewers along restricted R.O.W. areas, as well as limiting the release rate by adding detention facilities at outfall locations. Drainage areas will be confirmed by utilizing USGS or local government topo and digital terrain models or DTMs developed above. The work activities include:

- Field visit to check on existing conditions, validate existence of culverts and storm sewers, check for existing drainage patterns, obtain photos to use in report, confirm if any supplemental survey is required, and check outfall locations.
- Prepare drainage plan and profile drawings which will show added drainage features such as culverts in the plan and profile view, ditch locations and ditch profiles, and modified structures.
- Prepare drainage structure and pipe schedules for new/existing culverts.
- Perform detention outlet evaluation.
- Perform culvert design which includes all proposed culverts and modifications to existing culverts located in the project limits. Existing and proposed structure hydraulics will be assembled for discussion during design review meetings.
- Prepare a drainage report with executive summary, calculations and design criteria.

Erosion and sediment control measures are intended to limit the sediment pollution impact of any storm water discharges that originate on this site, or offsite flows that flow over the disturbed areas or downstream areas. Erosion control sheets will also be necessary to include with permit submittals. Typical erosion control practices will consist of sediment control silt fence, ditch checks, temporary erosion control seeding, and sediment basins where appropriate. These practices shall be applied prior to construction to reduce onsite erosion and prevent offsite sediment damage to adjacent land.

The 30% design scope will include design criteria, general plan sheet, roadway profile and cross sections. The plan sheet will identify approximate quantities for use in cost estimating. The plans will be reviewed with the City, MDOT and the railroads. The submittal, review and approval process will be similar to that employed above.

3.6.3.3 Signal and Communication Design

LTK will work with Quandel to evaluate alternative track and signal configurations to select the best solution to provide a double track configuration through the station site. The signal analysis will consider block length, stopping distances, bungalow size and space constraints, maintenance access, and proximity to electrical power and fiber optic communications. LTK will develop route and aspect charts for each alternative and cost estimates.

Upon selection of the final track and signal configuration, LTK will prepare preliminary engineering documents Construction cost estimates at the PE level for each phase and final costs. The PE documentation will be submitted to the railroads for review and signature, then included with the track plans for submittal to the FRA.

As is the case with the current MDOT high speed program, we anticipate that Amtrak will take responsibility for the final design, procurement and construct the mainline signal and PTC elements including the interlockings, wayside signals, grade crossing warning systems, switch machines and heaters, communication system, CTC and back office server and central control facility. The railroad's responsibility is expected to include compliance with FRA Part 236 regulations, including the submittal of PTC Implementations and PTC safety plans.

- Intermodal facility
  - Automobile Parking
  - Short Term Parking (including kiss and ride, taxi waiting and shuttles)
  - Transit Intermodal Operations Areas
  - Bicycle Parking
  - Safe and efficient pedestrian facilities

- Preliminary Structural Engineering
  We will provide structural engineering preliminary design for all aspects of the project including:
  - Elevated station platform
  - Multi-deck parking garage consistent with program
  - Typical circulation and access sections
  - Typical vertical circulation stairs, etc.
  - Internal pedestrian circulation
  - Engineering support for environmental impacts

The architect will prepare preliminary plans and elevations which can be employed in the public meetings to convey an accurate representation of the visual impacts of the station, parking and pedestrian bridge elements. Similarly, the track design engineer will prepare typical cross sections and plans depicting the new track alignment and station platforms for use in public meetings and for assessment of environmental impacts as required.

SUBTASK 3.7 EXPLORE POSSIBLE JOINT DEVELOPMENT

Nationwide has seen the growth of development hand in hand with transit projects. Often referred to as Transit Oriented Development (TOD) the hallmarks of this type of development are mixed use, access to public transportation, relatively compact development, and appropriate scale for pedestrians. The area that is typically considered prime property for this type of development is within a ½ mile radius of the transit station.

There are developers in Ann Arbor who have expressed particular interest in this type of development associated with both the potential new train station and the North South line. Regionally developers and communities are seeking TOD opportunities in Dearborn, Ferndale, and Troy as well as along the Woodward corridor of Detroit. Design Team members led the design of the facilities in Dearborn and Troy and are well acquainted with TOD principles. The Michigan Municipal League is a potential partner in developing a strategy for smart development. In addition the Ann Arbor Community Services Administrator, Derek Delacourt, brings experience as the former Director of Community and Economic Development of Ferndale in recognizing the value in transit.
Areas within a ½ mile north of the proposed station locations provide opportunities for this unique type of mixed use development. A key element will be the outreach to and input from property owners and residents in this part of the City.

SUBTASK 3.8 ART INTEGRATION

There is a defined process for considering the integration of art in public spaces in Ann Arbor. The Ann Arbor Public Arts Commission (AAPAC) makes recommendations to City Council on how to incorporate art into public projects. Once a potential major project is identified AAPAC works with City staff to form a task force and develop an RFQ/RFP. Once a selection committee makes a recommendation both the AAPAC and City Council are asked for approval.

A number of examples of public art exist now in the City such as the suspended sculpture in the Ann Arbor Justice Center lobby, tree sculptures in West Park, and the trio of art pieces that are integrated into the Fourth and Washington parking structure. Members of our design team who were architects for the parking structure project participated in the process which was the start of the Public Arts Commission. The Design Team has a long history of supporting and facilitating the integration of art into architectural projects.

SUBTASK 3.9 CONSTRUCTION PROJECT COST ESTIMATE

The project team will prepare a construction project cost estimate in FRA's Standard Cost Category format. The cost estimate will include the following design elements:

- Station building
- Vertical circulation
- Overhead bridge
- Platform
- Mechanical, electrical, and plumbing
- Parking structure and site access
- Site work/grading
- Drainage and storm water improvements
- Landscape and streetscape
- Rail infrastructure, signals, and communications
- Utility work
- Geotechnical work

The construction project cost estimate will also include contingency costs to account for items and conditions that cannot be realistically anticipated. At the preliminary engineering level, a reasonable contingency of 25% is suggested and could be used after consultation with the City of Ann Arbor and MDOT. Professional Services costs are added for design engineering, program management, construction management and inspection, engineering services during construction, insurance, and testing and commissioning. Professional services costs required to develop the project during final design and construction are estimated as a percentage of the estimated construction cost and could range from 25-35 %.
The construction cost estimate will be based on the detail provided by the preliminary engineering plans and will employ quantitative estimates of construction materials, equipment, and labor. The unit costs will be derived primarily from our team's previous station and track design experience, specifically considering cost data from the Dearborn Station project and MDOT's high speed rail track and signal improvement program.

SUBTASK 3.10 FINANCIAL PLANNING DOCUMENTATION

The submission of a Financial Plan is required as part of FRA's HSIPR grant funding program. USDOT's TIGER grant program does not explicitly require a Financial Plan, but elements that comprise a financial plan are required to be submitted as part of a TIGER grant application. The project team will prepare a Financial Plan that meets the requirements outlined by FRA in its most recent Notice of Funding Availability for High Speed Intercity Passenger Rail Program funding, which was made available on July 1, 2010. The Ann Arbor Station Financial Plan will identify the sources of funding to develop and construct the station; describe the risks associated with the financing, cost estimate, and schedule of the project; and will identify the sources of funding for operating and maintaining the station. To support the preparation of the Financial Plan, a cost-loaded schedule depicting the cash outflow forecast for the project will be prepared by calendar quarter in base year and year of expenditure dollars. Inflation assumptions will be described. The project team will work with the City of Ann Arbor, Michigan Department of Transportation, and FRA to identify funding sources and risks to project funding. Operating and maintenance costs will be developed in collaboration with MDOT, considering the experience of recent intercity station projects at Jackson, Battle Creek, Dearborn, and Troy-Birmingham. Financing of station O&M costs will be outlined.

The project team will also prepare a plan for financing project cost overruns and will work with the City and MDOT to identify potential sources of funding for cost overruns.

SUBTASK 3.11 CONSTRUCTION PROJECT IMPLEMENTATION SCHEDULE

The project team will prepare a final design and construction project implementation schedule using Microsoft Project software. The schedule will track deliverable submittals, review periods, and other key dates. Schedule risks and potential mitigation strategies will be addressed in Task 3.13.

SUBTASK 3.12 CONSTRUCTION PROJECT BENEFITS ESTIMATE: BOB

Project benefits are a key part of any federal grant application. The project benefits quantify the USDOT or FRA's "return on investment" for a project. For federal grant applications, a benefit-cost analysis is prepared that identifies, quantifies, and compares the expected project benefits and costs. The project team will prepare a benefit-cost analysis that considers the following:

- Project Benefits – aligned with TIGER Selection Criteria
  - Safety improvement
  - State of good repair
  - Environmental sustainability
  - Economic competitiveness (travel cost savings)
  - Quality of Life (property premium, residual value)
- Project Costs
  - Capital cost
  - Operating and Maintenance cost

Costs, travel conditions, safety outcomes, and environmental impacts for the build and no-build scenarios for the project for a 20-year horizon will be produced. The project team will coordinate with the City of Ann Arbor and MDOT on area travel conditions and ridership forecasts.

The project team will utilize a spreadsheet-based tool that conforms to Benefit-Cost Analyses Guidance for TIGER Grant Applications to prepare the benefit-cost analysis. The spreadsheet will be submitted with a TIGER Grant application for the project to serve as supporting documentation for the benefit-cost analysis.

SUBTASK 3.13 PROJECT MANAGEMENT DOCUMENTATION

The Project Management Plan (PMP) serves as an overview of the approach toward the planning, monitoring, and implementation of a project. The project team will prepare a PMP in coordination with the City and MDOT, that conforms to FRA requirements and includes the following elements:

- Organization chart with well-defined relationships, statements of responsibilities, job descriptions, and job qualifications;
- A project budget that includes the project management organization, appropriate consultants, property acquisition, utility relocation, and miscellaneous payments;
- A construction schedule for the project;
- Risk register and mitigation strategies;
- A document control procedure and record keeping system;
- A change order procedure that includes a documented, systematic approach to handling the construction change orders;
- Organizational structures, management, and staffing required throughout the construction phase;
- Quality control and quality assurance procedures and responsibilities for construction;
- Material testing policies and procedures;
- Internal plan implementation and reporting requirements;
- Criteria and procedures to be used for testing an operational system;
- Periodic updates of the plan, especially related to budget, schedule, and financing; and
- The commitment to submit a project budget and schedule to FRA on a periodic basis

Quandel has extensive experience in producing and implementing Project Management Plans on FRA-and FTA-sponsored projects including for the MDOT Dearborn to Ypsilanti double track construction project, the MnDOT Northern Lights Express PE/NEPA project, and the Ann Arbor-Detroit Commuter Rail Project.

A USDOT TIGER Grant or FRA Final Design Grant Application will be prepared by the project team for the final design and construction of the Ann Arbor Station project. The grant application will be assembled using the data gathered for the Construction Project Cost Estimate, Financial Plan, Construction Project Implementation Schedule, Construction Project Benefits (and Costs) Estimate, and Project Management Plan subtasks described above.

In addition to cost, schedule, financing, and management information, both types of applications require demonstration that the project meets several selection criteria including transportation benefits (safety, state of good repair), economic competitiveness/benefits, quality of life/livable communities, and environmental sustainability/benefits.

Quandel Consultants has prepared two successful USDOT TIGER Grant and one FRA HSIPR Grant applications on behalf of MDOT since 2010.

TASK 3 DELIVERABLES:

- Meeting summaries for all task related meetings Completed Set of all materials
- Complete Federal Grant Application TIGER or FRA Final Design

RESOURCES

- Neumann/Smith will oversee all preliminary engineering work and coordinate consultants.
- Mitchell & Mouat will collaborate with Neumann/Smith on architectural services.
- SmithGroupJJR will coordinate on site related studies and design.
- Quandel will coordinate on all rail and transportation related activities and author TIGER/FRA final design grant applications.

> TASK 4 - PROJECT MANAGEMENT

SUBTASK 4.1 PROJECT MANAGEMENT APPROACH

We will establish schedules and protocols to assure effective communication of all project activities between our team, City of Ann Arbor, MDOT and FRA.

Our team, the City, MDOT and FRA teams will have regular communication during the start-up period of this Phase of the project, at all major milestones on the schedule and to meet reporting and accounting requirements of the Grant. The City anticipates weekly scheduled conference calls with the MDOT Office of Rail and FRA to guide the preparation of the PE documents. The City may appoint a team of project managers to oversee the execution of the scope of work outlined in this Detailed Work Program.

The project manager team may include Public Services Area Staff and/or a to be determined contractor retained for such purpose. Eli Cooper will manage overall interaction with MDOT and FRA. TBD will assume the lead position to oversee engineering efforts as the project enters into Task 4, the project manager is responsible to monitor project quality, budget, and progress and keep records of work on this project. Project team meetings and management team briefings will occur monthly or more frequently when needed, depending on the project activity level. The City will disseminate information about the project to the community via postings on a project website, updates delivered via the City's Gov Delivery system email broadcast system, social media site as appropriate, press releases and scheduled public outreach meetings. Our team will provide content to be posted on these various media sources.

Regular project team meetings will enable the City's Project Manager to oversee efforts during all phases of the project, at major milestones on the schedule and to meet reporting and accounting requirements of the grant. Regular meetings and monthly reporting will enable monitoring of work quality, adherence to budget and schedule. Communication and meetings with the City Attorney's Office will be as needed to complete the necessary agreements

TASK 4 DELIVERABLES:

- QA/QC review of all contractor deliverables.
- Prepare and distribute meeting minutes for all progress and coordination meetings.
- Completed set of all required documentation.
- Completed Federal Grant application.

RESOURCES

- Neumann/Smith will coordinate all project management activities for the design team and interface with city's to be determined project manager.

Ann Arbor Station Preliminary Engineering Services

	2016		2017					
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Task 1 - Project Initiation	●							
City sets Single Site/NEPA done/Notice to Proceed	●							
Task 2 - Public Participation								
2.1 Public Involvement Plan	● ●							
2.2 Stakeholder Outreach	● ●	●	●	●	●	●	●	
2.3 Public Meeting Structure/Schedule	● ●	●		●			●	
2.4 Project Website	● ● ●	● ●	● ●	● ●	● ●	● ●	● ●	
Task 3 - Preliminary Engineering								
3.1 Site/civil infrastructure survey/geotech	● ●	● ● ● ●						
3.2 Preliminary Site Design/Utility Issues		● ●	● ● ● ●					
3.3 Architectural Services		● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ●	
3.4 Electrical/Signal/Communication Systems				● ● ● ●	● ● ● ●	● ● ● ●	● ●	
3.5 Preliminary Mechanical/Electrical/Plumbing				● ● ● ●	● ● ● ●	● ● ● ●	● ●	
3.6 Additional Engineering Services		● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ●	
3.7 Explore Possible Transit-Oriented Development						● ● ● ●	● ●	
3.8 Art Integration						● ● ● ●	● ●	
3.9 Construction Project Cost Estimate					● ● ● ●	● ● ● ●	● ●	
3.10 Financial Planning Documentation					● ● ● ●	● ● ● ●	● ●	
3.11 Construction Project Implementation Schedule					● ● ● ●	● ● ● ●	● ●	
3.12 Construction Benefits Estimate					● ● ● ●	● ● ● ●	● ●	
3.13 Project Management Documentation					● ● ● ●	● ● ● ●	● ● ● ●	
Task 4 - Project Management Meetings	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ●	
Final Report Preparation							● ● ● ●	
Preliminary Engineering Final Report Presentation							●	